

- 1 1. A base fluid comprising:
 - 2 at least about 5wt% olefins;
 - 3 at least about 5wt% n-paraffins; and
 - 4 between about 2 and 50wt% branched paraffins wherein substantially all of the branch
 - 5 groups are monomethyl and wherein the ratio of terminal monomethyl branching to internal
 - 6 monomethyl branching is at least about 1:1.5.
- 1 2. The base fluid of claim 1 wherein the ratio of terminal monomethyl branching to internal
- 2 monomethyl branching is at least about 1:1.
- 1 3. The base fluid of claim 1 wherein the n-paraffins are present in an amount of at least about
- 2 20wt% and wherein the ratio of terminal monomethyl branching to internal monomethyl
- 3 branching is at least about 1.5:1.
- 1 4. The base fluid of claim 1 wherein the n-paraffins are present in an amount of at least about
- 2 40wt% and wherein the ratio of terminal monomethyl branching to internal monomethyl is
- 3 at least about 2:1.
- 1 5. The base fluid of claim 1 wherein the base fluid is a product of a Fischer-Tropsch reaction.
- 1 6. The base fluid of claim 5 wherein the Fischer-Tropsch reaction incorporates feed syngas
- 2 having 10-60% N₂.
- 1 7. A drilling fluid comprising:
 - 2 the base fluid of claim 1.
- 1 8. The drilling fluid of claim 7 further comprising:
 - 2 at least one additive selected from the group of surfactants, viscosifiers, weighting
 - 3 agents, fluid loss control agents and proppants.
- 1 9. A drilling fluid comprising:
 - 2 from about 2 to about 90wt% olefins;
 - 3 from about 2 to about 50wt% isoparaffins; wherein the isoparaffins are substantially
 - 4 terminal monomethyl branched.
 - 5 from about 5 to about 90wt% n-paraffins; and
 - 6 from about 0 to about 10wt% oxygenates.
- 1 10. The drilling fluid of claim 9 wherein the olefins are present in an amount of from about 7 to
- 2 about 10wt%.

- 1 11. The drilling fluid of claim 9 wherein the isoparaffins are present in an amount of from
2 about 3 to about 15wt%.
- 1 12. The drilling fluid of claim 9 wherein the n-paraffins are present in an amount of from about
2 65 to about 90wt%.
- 1 13. The drilling fluid of claim 9 wherein the oxygenates are present in an amount of from about
2 0 to about 5wt%.
- 1 14. The drilling fluid of claim 9 wherein the base fluid is a product of Fischer-Tropsch reaction
2 on a synthesis gas.
- 1 15. The drilling fluid of claim 14 wherein the Fischer-Tropsch reaction incorporates feed
2 syngas having 10-60% N₂.
- 1 16. The drilling fluid of claim 14 wherein the synthesis gas is produced by autothermal
2 reformation.
- 1 17. The drilling fluid of claim 16 wherein the autothermal reformation occurs in the presence of
2 air.
- 1 18. The drilling fluid of claim 16 wherein the autothermal reformation occurs in the presence of
2 10-60% N₂.
- 1 19. The drilling fluid of claim 9 further comprising:
2 at least one additive selected from the group of surfactants, viscosifiers, weighting
3 agents, fluid loss control agents and proppants.
- 1 20. The drilling fluid of claim 9 wherein the olefins are:
2 from about 7 to about 10 wt%;
3 the isoparaffins are from about 2 to about 15 wt%; wherein the isoparaffins are
4 substantially terminal monomethyl branched.
5 The n-paraffins are from about 65 to about 90 wt%; and
6 the oxygenates are from about 0 to about 5 wt%.
- 1 21. The drilling fluid of claim 20 wherein the drilling fluid is a product of a Fischer-Tropsch
2 reaction.
- 1 22. The drilling fluid of claim 20 further comprising:
2 at least one additive selected from the group of surfactants, viscosifiers, weighting
3 agents, fluid loss control agents and proppants.

- 1 23. The drilling fluid of claim 20 wherein the base fluid comprises from about 25 to about 85
2 volume % of the drilling fluid.
- 1 24. The drilling fluid of claim 23 wherein the base fluid comprises from about 25 to about 85
2 volume % of the drilling fluid.
- 1 25. The drilling fluid of claim 22 wherein the Fischer-Tropsch reaction incorporates feed
2 syngas having 10-60% N₂.
- 1 26. The drilling fluid of claim 23 wherein the feed syngas is produced by autothermal
2 reformation in the presence of air.
- 1 27. A process for producing a drilling fluid comprising the steps of:
- 2 (a) producing a light Fischer-Tropsch liquid;
- 3 (b) distilling the light Fischer-Tropsch liquid to obtain a C₁₃-C₂₀₊ product having
4 C₁₃-C₂₀₊ hydrocarbons and oxygenates.
- 5 (c) dehydrating all or a part of the alcohols in the C₁₃-C₂₀₊ product by passing the
6 C₁₃-C₂₀₊ product over an activated alumina catalyst to produce a dehydrated product;
- 7 (d) recovering the dehydrated product; and
- 8 (e) separating the aqueous and organic phases of the dehydrated product.
- 1 28. The process of claim 27 further comprising the step of:
- 2 (f) adding one or more additive selected from the group of surfactants, viscosifiers,
3 weighting agents, fluid loss control agents and proppants to the organic phase of the dehydrated
4 product.
- 1 29. The process of claim 27 further comprising the step of (b₁) vaporizing the C₁₃-C₂₀₊ product
2 before step (c) and after step (b).
- 1 30. The process of claim 29 wherein the dehydrated product from step (c) is in the gaseous state
2 and step (d) further includes condensing the dehydrated product.
- 1 31. The process of claim 30 wherein the heat from condensing the dehydrated product is
2 recycled to at least partially vaporize the C₁₃-C₂₀₊ product in step (b₁).
- 1 32. The process of claim 27 wherein the light Fischer-Tropsch liquid is produced from a feed
2 syngas having 10-60% N₂.
- 1 33. The process of claim 27 wherein the feed syngas is produced by autothermal reformation in
2 the presence of air.
- 1 34. The process of claim 27 wherein a C₁₄-C₁₈ product is obtained in step (b) and dehydrated in
2 step (c).

- 1 35. A method of drilling a borehole in a subterranean formation comprising the steps of:
- 2 (a) rotating a drill bit at the bottom of the borehole;
- 3 (b) introducing a drilling fluid into the borehole wherein the drilling fluid comprises
- 4 a base fluid comprising:
- 5 from about 5 to about 90wt% olefins;
- 6 from about 2 to about 50wt% isoparaffins; wherein the isoparaffins are
- 7 substantially terminal monomethyl branched;
- 8 from about 5 to about 90wt% n-paraffins; and
- 9 from about 0 to about 10wt% oxygenates.
- 1 36. The process of claim 35 wherein the drilling fluid comprises:
- 2 from about 7 to about 10wt% olefins;
- 3 from about 2 to about 15wt% isoparaffins; wherein the isoparaffins are substantially
- 4 terminal monomethyl branched;
- 5 from about 65 to about 90wt% n-paraffins; and
- 6 from about 0 to about 5wt% oxygenates.
- 1 37. The process of claim 35 wherein the base fluid is derived from a Fischer-Tropsch reaction.
- 1 38. The process of claim 37 wherein the Fischer-Tropsch reaction incorporates feed syngas
- 2 having 10-60% N₂.
- 1 39. The process of claim 37 wherein the feed syngas is produced by autothermal reformation in
- 2 the presence of air.